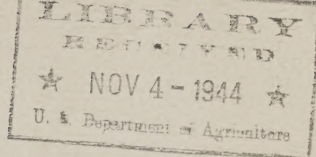


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A DESCRIPTIVE CATALOG OF

Flowering Tropical Trees

Grown from seed imported
from all over the World,
and now available for your
own garden in Florida.



Trees Described and Offered by
EDWIN A. MENNINGER
"The Flowering Tree Man"
STUART, FLORIDA

CONDITIONS OF SALE

All of the trees described in this book are growing in my garden at Stuart, Florida. They represent the surplus produced from seed which I have been importing from every tropical country in the world over a period of several years. They are only a fractional part of the flowering trees I am growing for the eventual beautification of all Florida and if the public reception of the 150 species described herein warrants, there will follow a companion catalog describing at least 150 others which are or soon will be available.

Floridians generally are acquainted with only two showy-flowered trees—the Royal Poinciana from Madagascar and the Jacaranda from South America. Beautiful as these are, they are only two out of the thousands which the World Tropics have to offer. There are many, many more, with red, orange, yellow, blue, purple, and white flowers, that most of us know nothing about. We cannot plant trees that we never heard of or even dreamed about.

The purpose of this catalog is to describe 150 outstanding flowering trees that Florida growers can now get acquainted with. Generally speaking, nearly all trees have flowers, but this catalog is devoted to those whose flowers are a conspicuous feature of the tree's growth. Not all of the species described are as gorgeous as the Royal Poinciana—not by any means. Not all of them will succeed in Florida—that is a matter of experiment for you and me over a period of years. Not all of them will prove popular. But in the pages that follow, you will learn of many splendid trees which, for the first time, you can actually obtain and plant in your own yard. You can take an active part in a constructive effort to create more beauty on our Florida landscape, for it is no harder to grow a beautiful, gigantic bouquet in your dooryard than it is to nurture an Australian pine or a seedling mango.

I make no pretense of scholarly attainments in the plant world. My sole interest is in finding, learning about and growing right here in Florida, the most beautiful flowering trees to be found anywhere in the World Tropics, and in enlisting other lovers of beauty to grow these trees with me—to the end that Florida—the State of Flowers—shall be famed for the gorgeous array of blooming trees which our incomparable climate makes possible. The descriptions in this book are in the language of the layman. I have drawn from scores of reference books to add to my personal experience and to the experiences of my friends, in order to tell you as much as I can about the possibilities of each tree. To assist the reader, I have classified all the entries under the color of flowers. To each tree is given first the correct botanical name in capital letters. Next comes, in italics, the "Natural Order"—the botanical family to which it belongs. Next, in small capitals, comes the correct common name for the tree if I have been able to find one; but bear in mind that there are no common names for most of them because these trees are decidedly uncommon. I don't care

what you call them; I am interested in the beauty they can produce for us, not in their titles.

This is a strange catalog in another respect—for the most part, no prices are quoted. The price depends on size, rarity, difficulty of propagation, and many other factors. If you want certain trees you find described herein, write me and I will quote you and tell you exactly what to expect.

Some tropical flowering trees are much hardier than others. If there is doubt in your mind about certain trees in which you are interested, I will undertake to advise you briefly of the climate of the locality in which the tree is native.

But I guarantee nothing. Great care has been exercised in growing and describing these trees as they are my consuming hobby. But unfortunately most of them have never bloomed in this country and I am powerless to tell you what any particular tree is going to do when you plant it in your yard. If you get trees from me, your order will be filled carefully and conscientiously, because I want you to succeed with the great experiment in beauty in which both you and I are engaged for the sake of the State we love.

EDWIN A. MENNINGER
"The Flowering Tree Man"
Stuart, Florida

**NEARLY 1,000 DIFFERENT FLOWERING
TROPICAL TREES**

are growing in my garden at Stuart, Florida. Most of them are small, having been raised from seed, and growing trees from seed is a slow business. But visitors are welcomed, particularly on Sunday afternoons, and personal selection of the trees you are interested in will always be the most satisfactory procedure. Make Stuart a port of call when you are on the middle East Coast of Florida if you want to see flowering tropical trees.

NOTE: I do NOT grow fruit trees, palms, shrubs, vines, lilies, and many other things. I deal exclusively in trees that have showy flowers; that field is big enough for me.

RED-FLOWERED TREES

BRACHYCHITON ACERIFOLIUS. (*Sterculiaceae*). **FLAME BOTTLETREE.** This is so called because in flowering time the leaves fall off and the tree is invested in an abundance of small cup-shaped scarlet blossoms with red stems so that it assumes a fancied resemblance to a fiery torch. This is the special distinction of the tree, which ordinarily is small but may reach a total height of 80 feet and a girth at the base of 7 feet. The branching is close and heavy, the crown a broad cone of dark shining green, the leaves maple-like, often 9 inches across. It is a tree of eastern Australia where it grows in hollows in deep, black soil, needs moisture, and seeks shelter in jungle areas. In California it blooms in June, and in the southern coastal region is considered "one of the showiest flowering trees that can be planted, a solid mass of dazzling color, ever more vivid than the scarlet flowering Eucalyptus (*E. ficifolia*)," according to Armstrong. (This tree is known also as *Sterculia acerifolia*).

CALLIANDRA HEMATOCEPHALA. (*Mimosaceae*). **REDHEAD CALLIANDRA.** (Syn *Anneslia hematocephala*). This is a shrub or small tree with fine cut evergreen foliage and a continuous succession through much of the year of very conspicuous flowers about the size of half an orange which consist mostly of a mass of bright crimson stamens. It is probably the best of the Calliandras for Florida and was introduced into this area by Dr. George Tyrrell of LaBelle. The flowers are very similar to those of *C. guildingi* of Trinidad, but are more prolific. The flowers are similar also to those of *Metrosideros* sp. which are so seldom seen in Florida, and to *Enterolobium* sp., although the latter are less colorful.

ERYTHRINA SP. (*Papilionaceae*). **CORALBEAN.** These red-flowered shade trees are among the most striking adornments for our Florida gardens and should be much more widely planted than they are. Although most of them lose some of their leaves in winter and have thorns, they are beautiful trees and their amazing red flowers compel attention from a long distance. I offer these outstanding varieties: *E. reticulata*. A small Brazilian tree, often only a shrub, with showy scarlet flowers in erect sprays at the ends of the branches, blooming from August to October in lowland areas of Rio de Janeiro. *E. falcata*. A medium-sized Brazilian tree with red-orange flowers from June to August in Rio, illustrated and described in "Album Floristico" as "a rapid growing tree of remarkable beauty, highly decorative, suitable for parks." *E. berteriana*. A thornless Costa Rican tree to 60 feet, flowering two or three times annually, hardier than most varieties, and the colder the climate in its native land, the more intense the spectrum-red color of the dense sprays of pea-shaped flowers. *E. poeppigiana*. A very large shade tree from Peru to 80

feet which T. B. McClelland, former director of the government's experimental grounds at Chapman Field, once told me he sometimes thought was the most beautiful flowering tree in that garden. *E. grisebachii*. A stiff, round-topped tree from Cuba, blooming when bare of leaves, of which David Sturrock says: "The terminal panicles of large double scarlet flowers make it well worth a special effort for southern Florida; it grows well on the dry soils of Cuba." I can supply at least 12 other *Erythrinas* for the specialists.

BAUHINIA GALPINI. This is a semi-evergreen from South Africa, really a scrambling shrub rather than a tree, and if allowed to "bush up" it will make an enormous cluster in the yard, about 6 feet high and simply covered with the reddest red "orchid" flowers you have ever seen. It can be grown as a vine and is often espaliered on the side on a building. The flowers are very beautiful. The plant should be put in the hottest, sunniest location available.

BAUHINIA TRIANDRA. This small tree has the loveliest fragrant rose-red flowers of any I have seen, and the mature tree in my yard is beautiful all through the month of November with its continuing bloom.

DELONIX REGIA. (*Caesalpinieae*). **FLAMBOYANT.** This most gorgeous of our flowering tropical trees is offered here only in the form of two varieties: (1) a salmon-flowered kind raised from seed from the Harvard Botanical Garden in Cuba and said to be very fine; (2) A double-flowered form grown from seed received from Commander R. C. Parker in the South Pacific with the note: "Double blossom. Red and pink color. The flower color can be governed by adding certain color pigments to the ground when the trees are young." This is my No. 1022.

SPATHODEA CAMPANULATA. (*Bignoniaceae*). The so-called "African tulip" tree is becoming very popular in Florida because of its spectacular orange-red flowers and because it blooms several times a year. Its correct common name is **BELL FLAMBEAUTREE**, but in India it is called "Flame Tree" or "Fountain Tree." I have raised seedlings from my own trees as well as from seed received direct from Africa. The conspicuous flowers, well suited to Florida because they appear in mid-winter when visiting tourists are here, the medium height, the attractive dark green foliage, the absence of aggressive roots, all contribute to making it an ideal street or parkway tree. It seems to thrive anywhere, stands dryness well, and although often cut to the ground by our winter cold snaps in Florida, springs up immediately from the roots, usually with two or three trunks, and will bloom again the same year. Ida Colthurst in her book "Familiar Flowering Trees in India," compares the shape of the flowers to the old pictured Roman lamps "so that when the tree is in full bloom it appears to flash and

gleam and burn as if it were decorated with many flaming lights." In Indian gardens they have a pink variety (*S. Roxburghi*) and a white (*S. amoena*), but they are unknown in Florida. We do have, however, a dwarf form of the BELL FLAMBEAUTREE, known as *Spathodea nilotica* and the crimson flowers are down where you can look at them. I have a few small plants but the trees are comparatively rare and botanists are not quite sure it is a distinct species.

STEREOSPERMUM SUAVEOLENS. (*Bignoniaceae*). Brandis describes this as a large tree, sometimes 70-80 feet though usually much smaller in dry areas. It has "exquisitely fragrant," dull, dark crimson flowers that are 1½ inches long in large, lax, sticky sprays. The old leaves are shed in India in April and the flowers appear before or with the new leaves in May. I originally obtained this tree from the old home place of that distinguished Florida botanist, Charles Torrey Simpson, who wrote of it: "A small crooked tree that sprouts very freely. Occasionally it forms its strange, lurid flowers which are ill-scented." Because of the odor and because "lurid" means "ghastly pale," I suspect these two botanists were writing about two different trees.

CASUARINA SP. (*Casuarineae*). These trees I raised from seed that came from an "Australian pine" at Clearwater, Fla., which bears red flowers, believe it or not. It was collected by Hubert Buckley of St. Petersburg, now dead, who was a plant fancier of considerable experience. The *Casuarinas* in their native Australia are called "She-Oaks" because of the peculiar noise the wind makes going through their branches and because of the oak-like patterns in the timber. My only speculation on the red flowers reported by Buckley is that possibly the purplish-red styles which "elegantly fringe the flower cones" in some species, may be more pronounced than usual in the Clearwater tree. Time will tell.

PINK-FLOWERED TREES

KLEINHovia Hospita. (*Sterculiaceae*). GUEST TREE. Classified by Macmillan as one of the world tropics' outstanding flowering trees, this evergreen from Southern India reaches 25 to 45 feet with a spreading top and has light green, heart-shaped 4-inch leaves. It bears large, upright sprays of pink or rose flowers at the ends of the branches. The individual flowers are not large and have no odor, but they are in bunches 6 to 14 inches long. In Ceylon it flowers chiefly in July and August, thriving best in the moist low country. The tree is suitable for avenue planting and is much used for this purpose in Calcutta. Corner says the tree is admired as a roadside tree in Malaya and does well on sandy soil.

DOMBEYA MOLLIS. (*Sterculiaceae*). This species, closely related to our very beautiful DOMBEYA or "Assonia" (*Dombeya Wallichii*), with its huge hanging pink flower clusters at Christmas-time, came to me from the botanical garden at Tananarive, Madagascar. The word "mollis" means "soft-hairy" but I have no description of the plant. The foliage is quite distinct from *D. Wallichii*, almost a blue-green color.

DERRIS DALBERGIOIDES. (*Papilionaceae*). According to Macmillan, this is a tall erect tree with fine feathery foliage. It loses its leaves for a brief period in February and March, "after which it bears at the ends of the branches masses of purplish-pink blossom, rendering the tree a striking object. The blossom, however, is soon over." *Derris* comprises both trees and vines but the genus is so confused with *Lonchocarpus*, *Pongamia*, *Piscidia*, etc., that the layman is inevitably, hopelessly confused. There are other showy-flowered trees in the *Derris* group, for example *D. hylobia* of Peru with carmine flowers, but the trees are rare in the United States and chief attention centers on this genus as the source of rotenone, "one of the most potent insecticidal constituents of plants used by South American natives as fish poisons."

CASSIA RENIGERA. (*Caesalpinieae*). BURMESE CASSIA. "The most beautiful of all Cassias," writes Kathleen Gough in "A Garden Book for Malaya" and this opinion is shared by many. The flowers are a richer pink and more showy than the commoner *C. nodosa*. There is a mature tree at the Montgomery Palmetum in Coconut Grove, so spectacular in bloom that I have made two April visits there for the particular purpose of viewing that tree. I know of only two *Cassias* that I think are more magnificent than *C. renigera*. One of these is an unidentified pink-flowered seedling in the U. S. plant introduction garden at Coconut Grove which I saw fairly smothered in bloom a year ago. The other is the extraordinary group of crosses made by cross-pollenizing *C. fistula* and *C. javanica*. This has been done extensively in Honolulu and I have a color photograph of one of these hybrid trees that is startlingly beautiful with flowers of many mixed colors all over the tree in greatest profusion. In Hawaii these crosses are called "Rainbow Shower." Some experimenters in Florida have done some of this cross-breeding and I have a young tree in my garden that represents one of these combinations, but what the flowers will be remains to be seen. (Do not confuse these cross-breeds with *C. hybrida*). Kuck & Tongg of Hawaii in their book: "The Tropical Garden," say of these cross-breeds: "These trees are hybrids between the yellow and the pink and white showers and vary widely among themselves. The flowers are usually of a prevailing apricot tone although individual flowers on the same branch may differ considerably. Some of the seedling colors are beautiful and others are rather muddy.

Layering and inarching from specimens which are desired, are two ways to be sure of getting a tree of satisfactory color. The form of the tree is also variable, being generally larger and more spreading than is the yellow shower. Like all the *Cassias*, it requires heavy pruning each year to keep it in good shape." This is quoted at some length because in the course of the next three or four years, these rainbow shower trees in a multitude of colors will probably be available to growers in Florida. For further information on these cross-breeds, see Degener's "Flora Hawaiiensis."

CASSIA HYBRIDA. According to David Sturrock, this tree has "heavy masses of light pink flowers, carried along the semi-deciduous branches, similar to those of *C. nodosa* of which this tree is possibly a seedling. Hardy, spready growing tree for exposed locations, with heavy medium-green foliage." My seed came from the Harvard Botanical Garden in Cuba of which Sturrock is superintendent.

CASSIA NODOSA. Famed pink-and-white shower. One of the best of the pink varieties.

CONOSTEGIA XALAPENSIS. (*Melastomaceae*). This is common through the West Indies and Central America and varies in size from a mere shrub to a spreading tree 25-35 feet high. Standley's "Flora of Panama Canal Zone" says it is "conspicuous because of its bi-colored leaves and showy pink flowers" which are in panicles, mostly small but many-flowered and dense. The sweet purplish fruits are of good flavor and are much eaten and often seen in the markets. "In flavor and appearance they suggest blueberries." In Costa Rica the trees are plentiful on the Atlantic watershed in well-drained soil. There is another species in Costa Rica, *C. Pittieri* which Standley says is a handsome tree "because of its abundance of rather showy (white, fragrant) flowers." This species is not known in the United States.

TABEBUIA PENTAPHYLLA (*Bignoniaceae*). The first time I saw this tree in bloom at Chapman Field, I felt it was the loveliest flowering tree for Florida I had ever seen and I still feel that way. Because it is evergreen or nearly so, under our conditions, because it is "clean," because its great clusters of pink flowers are gorgeous, I think it should be widely planted. It seldom grows to more than 40 feet. I am not alone in my enthusiasm for this tree, because Standley's "Flora of Honduras" says: "This is one of the most beautiful trees of Central America. . . . When in blossom the trees vie in their variety of shades with the famous Japanese cherries, and they exhibit about the same amount of variation in color through the same shades of pink and purple. The trees flower usually about the end of the dry season, and the flowers are produced in such abundance that the trees resemble great bouquets." In Standley's "Flora of Costa Rica" he says of this tree: "In beauty it has few rivals. The trees often form pure stands

of considerable extent, and when covered with their blossoms during spring months, afford an exquisite display of color." There is some confusion in the United States over this tree, partly because some reference books have made it identical with *Tabebuia pallida*, an entirely different tree, and partly because some trees have been distributed under incorrect names. To differentiate these trees, T. B. McClelland, former head of Chapman Field, once wrote me: "*T. pentaphylla* is a larger, more open tree with much larger foliage. The flowers are in clusters rather than in masses as on *T. pallida*." Mr. McClelland sent me seed of the Chapman Field tree (it originally came from Salvador) and I have received seed direct from Salvador, and I have raised trees from both broods. *T. pentaphylla* is the national tree of Salvador by act of their Congress. My seed from Salvador was sent by Sydney M. Stadler, president of the Committee for the Beautification of the Highways and Public Parks of Salvador. Down there the tree is known as *Maquilishuat*. All of the *Tabebuias* have wood that is so beautifully grained that there is a tendency in Central America to slaughter the trees for their timber, with the result that some varieties are becoming extremely scarce.

GARCIA MAYANA (*Euphorbiaceae*). A tree to 40 feet bearing pinkish flowers 1 inch wide, described by Britton "Scientific Survey of Porto Rico and the Virgin Islands" from a type tree at Mayaguez.

GARCIA NUTANS. This is a much better known tropical American tree with inconspicuous flowers and large, rough leaves. (cf. Standley: "Flora of Costa Rica.")

YELLOW-FLOWERED TREES

COCHLOSPERMUM VITIFOLIUM. (*Cochlospermaceae*). YELLOWSILK SHELLSEED. This is a particularly beautiful and showy flowering tree, bearing golden yellow flowers 4 inches or more across, much like oversize single roses. The flowers come in April before the leaves which are deeply 5-lobed and often a foot across. This tree starts to bloom when only a few feet high but eventually it grows to 40 feet and produces quantities of golden flowers all over its otherwise bare branches. I grew these trees from seed gathered at the Montgomery Palmetum in Coconut Grove.

COCHLOSPERMUM HIBISCOIDES. This name may be a synonym for the tropical American *C. vitifolium* but my seed came from Honolulu where it is called "the buttercup tree." Marie C. Neal, botanist of the Bishop Museum at Honolulu, wrote me concerning it: "From tropical America. Its many large yellow flowers are scattered over the tree and are especially conspicuous if they precede the new crop of leaves (*sic!*). A most attractive little tree, becoming more and

more common in cultivation in Honolulu." There are five species of *Cochlospermum* in South America, two in Africa, one in India, four in Australia, and most of them have large yellow flowers, so this emigrant from South America might easily turn out to be different from *C. vitifolium*. And in my garden I have succeeded also in growing *C. religiosum* (Syn. *C. gossypium*), the Indian COTTON SHELLSEED which over there is usually called "the torchwood tree." Ida Colthurst in "Familiar Flowering Trees in India" illustrates this in color and says the trees are partial to dry soil and continues: "The blaze of a company of these trees, with their large, pure yellow almost transparent flowers, tipping the naked branches in a golden gleam, is a sight once seen never to be forgotten. It is known as the torchwood tree for it is saturated with a clear fragrant gum. . . . Even while still green a branch of the tree will burn freely and show a good light." According to Macmillan the flowers are esteemed as temple offerings. *Cochlospermum* is closely allied to *Bixa*, as well as to *Bombax*, *Ceiba* and *Chorisia*.

PITTOSPORUM REVOLUTUM. (*Pittosporaceae*). A tall shrub with yellow flowers, sometimes a single rather large flower at the tip of a branchlet, but more frequently a dense cluster of smaller flowers.

THEOBROMA CACAO. (*Sterculiaceae*). CACAO. This is the tree from which we get our cocoa and chocolate. It is exceedingly difficult to establish in this country because unless the seeds are still moist from the pod, they will not germinate. Although this tree is native of Central America, the industry there has been neglected and most of our chocolate comes from Liberia, produced in Africa on trees transported there from this continent! *Theobroma cacao* is a small, spreading, shade-loving tree. The yellow flowers are produced on the trunk and large naked branches, and there also develop the large, ribbed, woody, elliptic-ovoid pods which are light green, yellow or red in color and contain the beans. These beans, as well as being universally popular in confections and drink, are used in some regions of Central America as a substitute for coin in business transactions, according to Standley's "Flora of Panama Canal Zone."

HELIOCARPUS APPENDICULATUS (*Tiliaceae*). A tree to 50 feet or more, or rapid growth, flowering 6 to 7 years from seed. The flowers are 1 inch or more across in great clusters, pale to medium yellow. The leaves are large, suggesting various mallows. The tree is deciduous. It grows in rather heavy soil in the upper tropical range of Costa Rica. Record's "Timbers of the New World" says that the *Heliocarpus* are fast growing trees; the Mexican and Central American varieties have white, very light, soft wood that is coarse and stringy, while the South American species provide better timber.

ALBIZZIA SP. (*Mimosaceae*). These trees were raised from seed

sent to me from the South Pacific by Commander R. C. Parker. The pods and seeds looked very much like *A. lebbek*, the common WOMAN'S TONGUE TREE of our Florida gardens which has greenish white fuzz-buzz flowers that are occasionally conspicuous but never arresting. However, Commander Parker sent this note: "A slow-growing flowering tree, called a yellow orchid." And to support his note, he enclosed in the envelope with the seed a crushed and badly wilted flower which in shape resembled the bloom of *Bauhinia purpurea* except that it was clear lemon yellow in color, the largest petal or standard measuring 1½x2 inches or more. This flower left me completely at sea; I never saw one like it on either a *Bauhinia* or an *Albizzia*, so determination will have to come later. The leaves of the young seedlings look like *Albizzia*, and I list it thus temporarily. This is my No. 1019.

ACACIA SP. (*Mimosaceae*). I have grown about 50 varieties of Acacia, most of them virtually unknown in the United States, which my Australian nurserymen friends recommend as their best flowering varieties. Persons interested in this family are invited to inquire about them particularly. They are mostly short-lived trees which do not succeed particularly well in Florida where the summers are too hot.

PTEROCARPUS INDICUS. (*Papilionaceae*). [BURMACOAST PADAUK. A most beautiful shade and flowering tree, native of the Andaman Islands, but cultivated throughout India, southern China, the Malay Archipelago and the Philippines as an ornamental. It makes a very large, spreading tree with long outflung branches and long slender side branches that droop with the weight of the foliage. Nehrling reported that the trees thrived for him at Naples, Florida, near the Gulf coast, in moderately moist, rich soil. Macmillan says it "bears a profusion of yellowish, scented flowers in March or April (in Ceylon), followed by small, circular, winged pods. Famous for its fine timber." Macmillan lists this tree emphatically among the most beautiful foliage trees of the world tropics. David Sturrock recommends it as a good, semi-deciduous tree for general planting. However the most enlightening description of the PADAUK and its strange manner of flowering, is set forth in Corner's "Wayside Trees of Malaya" which says in part:

"This magnificent tree is wild in a few parts of Malaya, chiefly by the sea; in the east of Johore it is not uncommon along tidal creeks and rivers. It is best known as a roadside tree, for which purpose it excels in the beauty of its vast shady crown and its fragrant yellow flowers. In mature trees the lower branches spread outward and droop so that their ends sway in the wind and may even sweep the ground: the uppermost branches are short, erect and twiggy, while the middle branches are intermediate in length: and this configuration gives the even dome-like crown. Pollarded trees, like those in front of the hospital at Penang, develop enormous ascending limbs.

"Early in the year, after the break in the wet weather, the Angsana (the Malay name for this tree) sheds its leaves, becomes bare for a few weeks and then develops new leaves and flowers. Throughout most of the country, from Malacca northward, where the dry season is sufficiently marked, the Angsana is completely deciduous but usually in Johore and Singapore, where the season is not pronounced, it changed its leaves by a branch or two at a time, working from below upwards, and then it may be several months before the crown is entirely renewed. A very dry August may induce a second leaf-change later in the year, but this is uncertain and less decided.

"The inflorescences develop in the axils of the young, light green foliage but the Angsana is peculiar because its flowering is not continuous. In any one neighborhood, the trees which are ready to flower will burst into blossom on the same day; the petals will rain down the next morning, laying the familiar yellow carpets by the road, and then there will be an interval of several days before all such trees in the neighborhood flower again; and so the trees continue in fitful bloom until their inflorescences are exhausted. In full flower the crowns seem painted yellow and the air is pervaded with fragrance. It seems that the trees need a special stimulus to open their flowers. The incidence of dry weather causes the leaf-change and the development of the inflorescences, but some other factor makes the flowers open; unless this factor arises, the buds remain rudimentary. It may be that the flower-buds, like those of the Pigeon Orchid, are stimulated to develop by a sudden drop in temperature, as is caused by a heavy storm, and then all the trees which are ready to flower and which lie within the influence of the storm will blossom together after the necessary interval for development. The coffee-bushes and the marsh-orchid also flower gregariously in a similar manner.

"The fruits of the Angsana take about 4 months to ripen.

"The wood of the Angsana has a rose-like odor and is said to be the best fine-furniture wood in the country. Various parts of the tree, including the red gum which oozes from wounds, are used in native medicine."

Because of the color and smell of the timber, the common name Burmese Rosewood is often ascribed to this tree. Strangely enough, all the Asiatic members of the *Pterocarpus* family are valued for their timber, while the various South American species have mostly soft, worthless wood.

PTEROCARPUS ECHINATUS. To this native of the Philippine Islands, Macmillan gives first rank among the most beautiful flowering trees to be found in the world tropics. He writes: "Moderate size tree. Bears large clusters of pale orange-yellow flowers during April and May, followed by circular, prickly, winged pods. Very ornamental when in blossom." My seed of this tree came from the world's finest tropical botanical garden at Buitenzorg, Java, and reached me

after the Japs had captured that island. I shared the seed with the Fairchild Tropical Garden and a good many young trees from it have been distributed over South Florida. This species seems to be identical with *P. erinaceus* (described in Hutchinson & Dalziel: "Flora of West Tropical Africa") and I recently received some fresh seed under this identification from Accra, Gold Coast Colony. I hope to be successful in germinating it and producing a lot more of these beautiful trees. Hutchinson & Dalziel says: "To 40-50 feet. Often covered with golden yellow flowers when quite leafless."

PTEROCARPUS MARSUPIUM. As the two preceding represent Burma and the Philippines, so *P. marsupium* represents India. Prized for the kino gum which it produces when wounded, as well as for its lovely one-half inch yellow flowers in enormous masses, the Pterocarpus trees of India were slaughtered over a period of many years and large specimens are rare now even in its native land. In the United States the species is unknown, though it thrives at the Harvard Botanical Garden in Cuba. It is described by Ida Colthurst in "Familiar Flowering Trees in India" as follows:

"The Indian variety *P. marsupium* nearly became extirpated except in inaccessible forest tracts, but is again being vigorously cultivated. It is a tree of remarkable economic utility, attaining a magnificent size and yielding beams 20 feet long and 1½ feet square. The very durable close-grained wood takes an exquisite polish and consequently is admirably suited for furniture. The rough outer bark exfoliates in heavy scales, and from the rusty inner bark flows a copious gum resin, which is obtained by making V-shaped incisions and collecting the sap in shallow pans where it is allowed to dry into the astringent, very brittle, ruby-red mass which is the true Kino of commerce, employed medicinally and in dyeing and tanning processes.

"The leaves appear in great profusion, dark-green and shining and growing gracefully in long alternate plumes comprised of irregularly opposite leaflets, covering the tree almost from summit to base.

"The fugitive bloom, appearing when the year is young, also loads the branches with great spreading panicles of fairly large and clawed yellow flowers, very highly scented and in the forest having the remarkable quality of all blooms opening on the same day on every tree in the neighborhood; all day the air is a sensory intoxication while in their vicinity; at dusk the flowers fall, forming, by morning, a thick yellow carpet under the trees.

"The pod is flat and compressed marginally, with the seeds in the centre, 2 or 3 only at most and each in a separate compartment. Ordinarily trees and plants are most extravagant in the matter of seed production, but in the *Pterocarpus* as the fruit ripens, one only of the cells develops and one only of the ovules is converted into a winged seed, whose form has suggested the generic name, *pteron* meaning a wing and *karpus* a seed. This heritage of winged appendages is not a

matter of mere accident, but a condition essential to the further establishment of certain tall trees, among which seeds of this nature occur. The force of wind increases with altitude, so height is obviously an advantage if seeds are to be conveyed unimpeded to some distance, and the lighter they are, the further afield can they be carried."

PTEROCARPUS OFFICINALIS. This is the first of the South American varieties to be offered here. It is a tall tree with a slender trunk and thin flange-like buttresses up to 7 feet high. It bears rather large yellow flowers in copious bunches. The sap turns red when exposed to the air. The tree grows extensively in swampy ground in the West Indies and Central America. Its wood is practically valueless. Occasionally, part of the flower is violet. Most of the *Pterocarpus* trees have yellow flowers, and the only other two-color effect of my acquaintance is offered by *P. dalbergioides* of the Andaman Islands which has "lovely green and violet panicles" of flowers. The tree is unknown in the United States.

PTEROCARPUS ROHRRII. This is another South American variety with yellow flowers. I raised the trees from seed obtained at the Royal Botanical Garden in Trinidad.

PTEROCARPUS VIDALIANUS. This is an extremely rare tree from India, which is described briefly in Sturrock's book, "Ornamental Trees for Florida and Cuba." It had yellow flowers and is semi-deciduous.

TIPUANA TIPU. (*Papilionaceae*). **TIPUTREE.** Ordinarily not more than 30 feet but in its native South America sometimes 100 feet high, this beautiful tree is planted for shade and ornament along streets and in parks in many cities of Argentina, southern France, Algeria and rarely in the United States. The bright yellow butterfly-shaped flowers in sprays at the tips of the branches, described by Bailey's "Hortus" as showy, unfold their color at leafing time. In Florida the tree is virtually evergreen and grows fast.

CASSIA SPECTABILIS. An ornamental tree from Central America, reaching from 15 to 60 feet, bearing large yellow flowers in clusters.

CASSIA TOMENTELLA. A variety of *C. Brewsteri*, native of Australia. Yellow flowers.

CASSIA FERRUGINEA. Native of Brazil, where it is considered very ornamental for street and parkway planting. The yellow flowers are very fragrant, and in appearance are very similar to those *C. fistula* which is seldom seen in Brazil.

CASSIA STANDLEYI. A rapid-growing small tree to 30 feet. My correspondent in Zarcero, Costa Rica, who sent this seed, writes:

"The 'candlestick senna' is perhaps our showiest species with its long candalabra-like spikes of deep, orange-yellow flowers with black base. Much cultivated in the tropical zone of Costa Rica. Grows in sand or loam; rather moist ground suits it. My choice among the numerous native and exotic species."

CASSIA SUFFRUTICOSA. A bushy small tree bearing a profusion of yellow flowers off and on throughout the year. It is very attractive when in bloom and its bright evergreen foliage adds to the landscape contrast.

H. A. E. M. A. T. O. X. Y. L. O. N. C. A. M. P. E. C. H. I. A. N. U. M. (*Caesalpinieae*) LOGWOOD. A rather small tree from the West Indies and Central America, famous as the source of an important natural dyestuff. It has a very pretty white, crooked trunk and branches which contrast strikingly with the dark green fine cut leaves. The small, fragrant, bright yellow flowers are in considerable numbers in early Spring, making this an interesting small ornamental tree. Strictly sub-tropical, it will not thrive far north in Florida.

P. E. L. T. O. P. H. O. R. U. M. I. N. E. R. M. E. (*Caesalpinieae*). SOGABARK PELTOPHORUM. A beautiful evergreen tree from the Philippines and "one of the best shade trees we have" in those islands, according to Dr. E. D. Merrill, distinguished head of the Fairchild Tropical Garden. It bears great upright spikes of very showy yellow flowers, blooming in Florida from May to August.

Kathleen Gough in "A Garden Book for Malaya," writes: "Best of all for cuttings are perhaps the luminous flowers; those that glow and hold light. I do not know what it is that gives some flowers a 'lit-up' look; not only does the light shine through their petals, but they seem to catch, reflect and hold it . . . Yellow and flame-colored dahlias hold light, and so do the fleeting single hibiscus, blue morning glory and, above all, the golden spikes of *Peltophorum inerme*. Sprays of these flowers indoors seem liquid gold; they are wonderfully beautiful with their decorative unopened tight bronze buds and bronze stems, just touched with gilt. The fully opened flowers have crinkled golden petals and orange-tipped stamens. The light shines and glows in a mass of these beautiful flowers more intensely in the shade indoors than when they are growing outside."

W. E. Broadway of the Trinidad Botanical Garden, wrote: The appearance of this tree at all times of year is conspicuous on account of its dark green feathery foliage. When in flower this dense tree carries great weight with those who prefer a mass of bloom."

Henry Nehrling wrote: "In comparison with the many other distinguished representatives of its family, this tree adds variety to the collection, its compound leaves being much larger, individually and collectively, of a much deeper green, showing in certain lights a faint steel-blue tint in the old, and a more ferruginous cast in the

young foliage. The large, erect flower panicles terminating every shoot are covered with a rusty-brown tomentum with a slight touch of chestnut color. Its vigorous growth, the distinct green color of its foliage and the large erect panicles of bright yellow, fragrant flowers combine to make this tree a marvelous object of tropical beauty. It is a unique and a first-class flowering and shade tree. It thrives well in South Florida, is evergreen, not too dense, gives a good shade and produces an abundance of showy flowers. A well drained soil, rather dry, is what it requires."

Trimen wrote: "A magnificent sight when in full bloom." In Ceylon the tree blossoms twice a year at irregular seasons, some specimens being in blossom while others nearby are carrying the ripe seed pods, flat, several inches long, shaped like the blade of a paddle.

PELTOPHORUM LINNAEI. BRAZILWOOD **PELTOPHORUM.** This is a comparatively rare member of the family, from the northern coast of South America. It grows to about 30 feet and has much finer, more feathery foliage than its Philippine cousin. The yellow flowers are small but they are borne in great quantity and are "very tubular," according to my information that came with the seed from the botanical garden in Trinidad. It is described in Grisebach's "Flora of the British West Indian Islands."

PELTOPHORUM BRASILIENSE. Sturrock describes this tropical American native as "a tall growing tree with a straight, slender trunk and long, slender branches, forming an open top. The bipinnate leaves are 8 - 10 inches long with many oval 1 - 1½ inch leaflets, smooth, glossy dark green. A hardy, semi-deciduous tree for general planting, suitable for dry soils."

PELTOPHORUM DASYRACHIS. Practically unknown in the United States, this tree is described in Corner's "Wayside Trees of Malaya" as follows: "A medium-sized, deciduous tree, up to 80 feet high, but the crown is uneven, irregular, and not umbrella shaped (like the other Malayan species, *P. pterocarpum*). Flowers in axillary racemes 8 - 14 inches long. Even in the open this tree has a loose, straggling crown, with a few upright branches giving it the appearance of a very large jacaranda. It is deciduous but it flowers as the new leaves develop. The inflorescences arise from the axils of the new leaves: they are unbranched and are never terminal. The branches of the tree therefore develop monopodially and for this reason, no doubt, the crown does not flatten and become umbrella-shaped. In habit, flower, and dangling bunches of pale (drab) pods it is easily distinguished. . . . It is said to be a useful tree for afforestation of lalang (grassy) wastes."

NORONHIA EMARGINATA. (*Oleaceae*). This large bush or small tree, native to Madagascar, but rarely planted in Hawaii and

elsewhere through the asiatic tropics, bears yellow fragrant clusters of flowers among the dark green spatulate leaves. The stiff leaves resemble those of the INDIAPOOON BEAUTYLEAF (*Calophyllum inophyllum*) and the MAMEY (*Mammea americana*). The tree bears edible, purple, olive-like fruits about 1 inch in diameter and the sweet-tasting pulp encloses a large seed.

HETEROPHRAGMA ADENOPHYLLUM. (*Bignoniaceae*). This is an ornamental tree of medium size, 30 to 50 feet from Indo-Malaya, bearing large yellow-brown wooly flowers in bunches at the ends of the branches. It is closely related to the catalpa and the African tulip tree of Florida gardens, but is suited only to the tropics or sub-tropics. It has a slender, erect trunk and long, erect-growing branches and large opposite pinnate leaves. Sturrock says it is a rapid growing semi-deciduous tree of striking appearance and requires rich soil and shelter from strong winds. The tree was introduced some years ago by the USDA as P.I. 110869.

TABEBUIA DONNELL-SMITHI. This is an outstanding member of the family which is described in Bailey's Encyclopedia as follows: "Known in Mexico as Primavera and said to be one of the most beautiful trees, sometimes 4 feet diameter, and the wood very valuable: flowers beautiful golden yellow, in great abundance, usually appearing before the palmately compound leaves." My seed came from my friend, Mr. Stadler, in Salvador, who wrote me that he was hoping to produce 50,000 trees of this variety to be planted along the highways of Salvador. Can you imagine the magnitude of such a project? Mr. Standler wrote me in this connection as follows:

"The tree with clusters of yellow flowers is known here as Cortez Blanco although the flowers are yellow. This is a light yellow wood, almost white, and is used here for making furniture. This tree is fast disappearing also."

So far as I have been able to observe, there are no mature trees of *Tabebuia Donnell-Smithi* in the United States, but it will make a splendid addition to our list of available flowering trees for street planting.

TABEBUIA SERRATIFOLIA. This is a yellow flowered variety which has had a limited distribution through South Florida. It's bright green leaves with rough edges are unusually attractive most of the year.

TABEBUIA ARGENTEA. This is the common yellow flowered variety with the gray green foliage. It is extensively planted around Miami and is a golden cloud when in bloom.

BAUHINIA TOMENTOSA. This is a yellow-flowered shrub or small tree. The blooms, tubular in shape, are a clear golden yellow and come two or three times a year.

GMELENA ARBOREA. (*Verbenaceae*). MALAY BUSHBEECH. This is a charming tree of shady localities and the lower hills throughout India. Ida Colthurst in "Familiar Flowering trees in India" says: "Nature, always inimitable in her choice of harmonizing colors, nowhere perhaps excels herself as when she blends yellow and browns; and a good example of this art is the exquisitely scented bloom of *Gmelina*. The flowers appear on a naked tree, from the end of February right on to mid-April, and in shape bear some resemblance to *Antirrhinum* (SNAPDRAGON). They have five petals, four of which are tawny, and the fifth a bright yellow which in the bud is bent inwards and protected by the darker ones. The leaves, broad (6x9 inches) and heart-shaped and ending in a point, appear as soon as the season of blooming is over." The leaves are dark green and glossy on the upper surfaces, pale green underneath. Sturrock says it is a handsome, unarmed tree requiring rich soil. Corner's "Wayside Trees of Malaya" calls the flowers "orange yellow," says they are often in clusters a foot long at the tips of the branches and from leaf axils. The tree, usually 50 to 60 feet, grows much larger in Burma and is valued for its timber because it "lasts well under water, better than teak." (Brandis: "Forest Flora of Northwest and Central India.")

GMELENA ASIATICA. According to Corner, this is a scrambling, thorny evergreen tree to 25 feet with much smaller leaves than the foregoing, and 1½-inch clear-yellow allamanda-like flowers in short clusters. It flowers nearly throughout the year, according to Brandis, and is "an excellent hedge plant" as it usually appears as a shrub.

GMELENA HYSTRIX. BRISTLY BUSHBEECH. Bailey's encyclopedia describes this: "A large, spiny, scandent shrub. Flowers in dense terminal cymes, the colored bracts very large. Corolla 2 inches across, yellow. A sprawling plant with the habit of *Bougainvillea*."

BLUE OR PURPLE-FLOWERED TREES

GUAIACUM OFFICINALE. (*Zygophyllaceae*). COMMON LIGNUMVITAE. Although Bailey's encyclopedia says the blue or purple flowers of this 30-foot tree from the West Indies are "not showy," I beg to differ. Its fine-cut bright evergreen foliage forms a background for countless numbers of small blue flowers in terminal clusters that are perfectly beautiful and I have seen specimens trimmed back into hedges simply covered with bloom and breath-taking in their loveliness. Holdridge: "Trees of Puerto Rico" calls the "bright blue flowers . . . very ornamental," and Standley: "Flora of Panama Canal Zone" goes further and says: "The showy flowers." The tree is extremely slow-growing. Its wood is olive-brown to black, oily or waxy, with a distinctive odor, very hard, heavy and fine-grained.

Record: "Timbers of the New World" says: "The most important as well as the most exacting use for LIGNUMVITAE is for bearing or bushing blocks lining the stern tubes of propeller shafts of steamships. The great strength and tenacity of the wood, combined with the self-lubricating properties due to the resin content, make this wood especially adapted for bearings under water." The leaf of LIGNUMVITAE is so similar to CHINABOX JASMINORANGE (*Murraya exotica*) that it is difficult to tell them apart, though they are in no way related.

MELIA AZEDARACH. (*Meliaceae*). CHINABERRY. This tree with its purplish fragrant flowers, is too well known to require a description here. It is one of the few members of the mahogany group that has showy flowers. I can also offer *M. candollei*, an Indian relative.

MUNDULEA SUBEROSA. (*Caesalpinieae*). A showy, shrubby tree for patio or tub, native of India, bearing bright pinkish-violet, pea-shaped flowers in short spikes at the ends of the branches. The leaves with long tapering tips, are dark green on the upper surface, silvery below. Macmillan says it is a shrub or tree of 10 to 15 feet feet, used for ornamental planting in Ceylon.

ORMOSIA PANAMENSIS. (*Papilionaceae*). The ORMOSIAS get their common names of "necklace tree" or "bead tree" from the fact that their attractively shaped and highly colored seeds lend themselves naturally to the making of necklaces, and they are much used in this way by the natives of tropical countries. Of the flowers on these trees in general, Bailey's Encyclopedia says: "Large panicles or racemes of white, lilac or black-purple papilionaceous flowers." The first tree of *O. panamensis* that I brought from the Fairchild Tropical Garden, was killed outright by a temperature of 30 in January, 1942, but I have raised others from seed. The trees have lavender flowers and beautiful scarlet seeds.

ORMOSIA COCCINEA. This is a very large, spreading tree which in its native Panama attains a height of 60 to 80 feet and a spread of 150 to 200 feet. The dark purple flowers are borne in panicles. The pods contain from one to four seeds that are colored red and black, very beautiful. I was unable to raise this tree from seed but I have succeeded with some small plants that I imported from the Canal Zone. Dr. Fairchild brought another beautiful ORMOSIA from the Philippine Islands, *O. calavensis*, which is thriving for me. Dr. Fairchild wrote of it: "When in fruit this is a showy landscape tree, for its clusters of chocolate brown pods open and show off their brilliant red seeds, two in each pod. . . . It may prove useful also as a street tree." This tree was not injured by the cold wave in Stuart that killed *O. panamensis* outright and froze *O. coccinea* to the ground.

LONCHOCARPUS SERICEUS. (*Papilionaceae*). LANCEPOD. Here

is one of a considerable number of South and Central American trees bearing large and showy flowers. This species occurs also in west Africa. It is described by Hutchinson & Dalziel as a tree to 40 feet or more bearing pale red-purple or lilac fragrant flowers in dense sprays that hang from the leaf axils. Grisebach calls the flowers purple. In Africa it ordinarily flowers when the limbs are leafless but my specimens have shown no disposition to go bare in the winter months. My seed was from Trinidad. It is closely related to but not identical with Rhodesian wisteria tree (*Bolusanthus speciosus*) which was distributed some years ago by the Bureau of Plant Introduction as P.I. 133317 and of which I have several specimens. It is described by Macmillan as one of the showiest of African flowering trees.

VIRGILIA DIVARICATA. (*Papilionaceae*). South African tree with sprays of rose-purple flowers. I also have *P. oroboides* from seed obtained in South Africa but have no description of the flowers.

BAUHINIA VIOLACEA. I think this is my favorite of the dark-colored Bauhinia flowers, for it is a rich violet, arresting in its color. It blooms twice a year and makes a splendid tree for the small garden.

ANDIRA INERMIS. (*Papilionaceae*). CABBAGE ANGELINTREE. (Syn.: *Geoffroya inermis*). A Brazilian tree that grows to 50 feet or more with a dense, dark green crown, this rare plant bears once a year large conspicuous bunches of purple (sometimes pink or pinkish-mauve) flowers at the ends of the branches. Often these sprays of bloom are a foot long. Standley's "Flora of Costa Rica" says: "The tree is a handsome one when loaded with its showy flowers." It is a common highway tree in Central America and in west Africa. The leaves vary greatly in color on different trees, being light yellow or wine colored when new, and several different shades of green at maturity. The gray bark has a bad odor, is used as a vermifuge. Holdridge "Trees of Puerto Rico" says *Andira* is "very attractive when in bloom" and has been used recently on the island for reforestation purpose. The wood is strong, durable and fairly heavy.

LAGERSTROEMIA SPECIOSA. (*Lythraceae*). One of the most beautiful of our flowering trees, this will be planted more and more as its beauty is appreciated. Small trees for planting have been available only in recent years. Now too, I have succeeded in germinating seed and have a few small trees of *Lagerstroemia turbinata*, an even more beautiful variety that has been cultivated in Cuba for several years. Another striking member of this family introduced into Cuba from India is *Lagerstroemia thorellii* which Ida Colthurst, in her book about Indian trees, says "is very popular for its beauty and long season of bloom, which make it *le dernier cri* (the last word) in tree planting."

This variety has white and mauve flowers on the same tree. There should be at least one *Lagerstroemia* in every Florida garden.

JACARANDA SP. (*Bignoniaceae*). I regard the JACARANDA as the most beautiful blue-flowered tree I have ever seen, but the more I read about the various varieties, the more confused I become. Therefore in presenting several species herewith, I do so with tongue in cheek because they do not bloom until about 7 or 8 years old and none of my seedlings has reached that age. First comes JACARANDA No. 1030 raised from seed from Guatemala. The only species described by Standley for that region are *J. copaia* with very large leaves, flower sprays to 16 inches long, making it "one of the most beautiful and showy trees of southern Central America;" and *J. ficifolia* with flower sprays "mostly" 2 to 3 inches long. Second comes *J. chelonja*, from Uruguay, described by Bailey as having a globular shape, with large blue flowers in sprays a foot long. Third comes *J. acutifolia* and close behind it *J. mimosaefolia*, which may or may not be identical, some of the reference books to the contrary notwithstanding. Album Floristico, published by the Brazilian government, says the flowers are violet-purplish, "covering the rounded crown of the tree which does not lose its leaves at the time of flowering (September to December in Rio)." Fifth comes *J. sagraeana* from Cuba with larger leaflets and "lax panicles of attractive bluish flowers." Besides the foregoing, I have in my collection at least five other JACARANDAS which show even in their juvenile stages some differences. Somebody needs to write a monograph on JACARANDA. There are two big trees in Palm Beach that were distributed by the USDA some years ago as a "red flowered" type, but these have never bloomed even after 10 years and the owner talks of cutting them down. There is a big tree in the city park in Fort Pierce which I think is a JACARANDA, but it has never bloomed and is now 30 feet high and its foliage is much coarser than most. In my opinion, we need in Florida a JACARANDA that carries its leaves through the winter. One or two of my species have done this in juvenile form; if they continue to do so when mature and also produce those gorgeous blue flower clusters, they should become extremely popular. Most of the JACARANDA trees with which I am familiar in Florida, drop all their leaves through the winter or lose so much of their foliage that they are ratty and unattractive at the particular time of the year we are entertaining our visitors. And a tree smaller in stature would be preferable. In Trinidad their native *J. coerulea* is a small tree with white-throated bluish violet flowers that come in the early months of the year. I had seed once but it failed to grow.

TABEBUIA CHRYSANTHA. This, believe it or not, is a variety that has purple flowers. All the reference books available to me say that *T. chrysantha* has yellow flowers and perhaps the name is incorrectly used here. However, the seed came to me from Mr. Stadler

under that name with a note: "This is a very rare tree." In Salvador, this is known as the Cortez Negro tree. It is a very fine hard wood used for furniture, but the tree has practically disappeared from its native Salvador. Down there it flowers in December and bears clusters of purple bloom. Mr. Stadler is the owner of a coffee plantation and wrote me that the only remaining mature trees of this variety with which he was familiar in Salvador are a few large specimens on his coffee plantation. I asked him for more information about it, particularly in view of the confusion in connection with the name and I received from him the following very interesting reply:

"The seed of Cortez Negro that I sent has purple flowers and the wood is so hard that it is known here as the 'arbol de hierro' — tree of iron. . . .

"Although the Cortez Negro has disappeared, except perhaps for a few trees in inaccessible places, I have produced 2,200 Cortez Negro this year and these are being handed out to responsible people who will cultivate them. Thus in a few years this tree once flowering and giving seed, will once again be of service to mankind. . . .

"My attention was drawn to the Cortez Negro some four years ago by an ex-President of El Salvador, Doctor don Alfonso Quinonez, but he admitted that he had never seen the tree. About three years ago, on a rough piece of mountainside owned by me, I spotted half a dozen trees flowering in December and being struck by the beauty of the clusters of purple flowers, I inquired from the peasants around and was informed that the tree in question is named Cortez Negro. Instructions were given to obtain for me a quintal of seed but due to the heavy winds at this time of the year only a small quantity was ever available, but I am happy to say that over 3,000 trees have been produced to date.

"Strangely enough, the day before your letter arrived I presented Dr. Quinonez with three Cortez Negros and he then explained to me that he had recently read a book on Salvador trees by a man named Guzman and there he had found the Arbol de Hierro, which is Cortez Negro, described as bearing clusters of yellow flowers, which is untrue as these are purple. What a coincidence that your letter arrived the following day!

"Since then I have discussed Cortez Negro with my plantation manager, a Guatemalan, who described this timber to me. When green the wood is the colour of toasted coffee with yellow veins, changing as it matures to patches of a very dark toasted coffee with the veins turning a very deep yellow. The timber has to be worked when green as it later becomes impossible to trim. It was used in the past for house construction and ox cart axles because of its hardness. He also advised that this tree still exists in a fair quantity in a spot in Guatemala, along the Pacific Coast. Now you have the whole story."

WHITE-FLOWERED TREES

ONCOBA SPINOSA (*Flacourtiaceae*). SPINY ONCOBA. Dr. David Fairchild brought back from Ceylon the first seeds of this tree to be introduced into the United States and one of the original seedlings is now a magnificent big tree on the Blossom estate in Palm Beach, about 25 feet high and its bushy head is all of 30 feet through. When it gets covered with its beautiful white and gold, scented camellia-like flowers it is a great show. It was from the Fairchild Tropical Garden that I got my seed and I now have some fine big trees to distribute. The tree is native of Arabia but Battiscombe reports it growing along streams in the Nyanza basin (Africa) at altitudes of 3,000-4,000 feet. The large, globular, woody-shelled fruits are reported to be edible. The shells are used in Africa for making snuff boxes. There is another species, *O. Routledgei* which is very similar in appearance and comes from Africa at elevation 5,000-6,000 feet. It is probably somewhat smaller and shrubbier than *O. spinosa* and produces during the summer a succession of showy white flowers with yellow stamens about 2 inches across and delightfully fragrant, resembling single white camellias. It stands plenty of water and is also drought resistant; does well in sun or half-shade. My plant came from a friend in California but has not flowered yet. This tree was introduced by the USDA from Egypt some years ago as P. I. 124007 with this description: "A handsome, spiny shrub or small tree up to 20 feet high, with alternate lanceolate, glossy-green, persistent leaves about 4 inches long. The showy fragrant flowers are borne rather freely on the old wood, over a long period in late winter. The 8 to 10 pure white petals, about 1 to 1½ inches long, surround a mass of golden yellow stamens."

PITTOSPORUM RHOMBIFOLIUM. Classed by some persons as among the most beautiful of flowering trees, this Pittosporum is much planted in parks at Santa Barbara, California, but is seldom seen elsewhere in this country. It makes a tree of 80 feet and each spring is covered with great clusters of small white flowers, followed by orange fruits.

CALOPHYLLUM INOPHYLLUM (*Guttiferae*), INDIAPPOON BEAUTYLEAF. A beautiful tree to 60 feet or more with great big spatula-like leaves and grand flowers. It is a native of the East Indies where it is a characteristic part of the forest along the sandy and rocky seashore. Because it is evergreen and flowers twice a year after spells of dry weather, it is much planted in the far East as a roadside tree. In Hawaii the tree is often used for beach gardens because it thrives in sandy soil and stands sea spray well, though if not protected from the wind, it is apt to become misshapen, though picturesque. Corner's "Wayside Trees of Malaya" says the flowering lasts two weeks at each season, clusters of white flowers in erect,

stiff bunches to 8 inches long, 4 to 15 flowers on a spike, the terminal flower often the largest, and adds: "The flowers begin to open between 3 to 4 a. m., are wide open by sunrise and wither the next day: Their fragrance, which is perhaps the sweetest of any Malayan tree, attracts innumerable insects which pollinate the flowers." Corner quotes an unverified report: "It is said that young trees grow slowly and take many years to blossom," but this is flatly disputed by Kathleen Gough in "A Garden Book for Malaya" who says: "For shading a tennis court from the evening sun, a group of trees such as *C. inophyllum*, with thick, heavy foliage, should be chosen. This tree is comparatively quick growing and its handsome leaves make it an excellent tree for shade or screen purposes." She continues: "To my mind this is the Lime tree of the East, not because of any similarity of leaf or flower, but by reason of its lime-scented flowers and the hum and buzz of bees in its branches. The flowers grow in upright sprays and not only the flowers, but the flower stalks, are white. The flowers have delightful thick yellow stamens, that grow from a small coral-pink ovary. The tight round buds are very decorative and remind one of cherry buds. Though hardly a showy or conspicuous flowering tree, it is a very delightful one to have in the garden." In Hawaii this tree is called "True Kamini" in contradistinction to "False Kamani," (*Terminalia catappa*). There is another member of this *Guttiferae* group which has flowers like *Calophyllum* but much more showy. This is *Mesua ferrea*, the magnificent "Ironwood" tree of India and Java which has never become established in the United States. I had seed once but was unsuccessful in germinating it as it had been 8 months enroute from Ceylon. Corner says it is frequently planted in Malayan gardens and by roadsides "but it grows slowly and takes many years to flower." Perhaps someday we can enjoy its beauty in this country, too.

PTEROSPERMUM ACERIFOLIUM. (*Sterculiaceae*). This is a tall, handsome Indian tree with distinctive foliage. The maple-like leaves are very large, usually a foot or more across, leathery, light green above, white or grayish beneath. The large fragrant flowers are 5 to 6 inches across, white to yellowish. Flowers in India from March to June, the seeds ripening the following cold season. The tree grows best in a mixture of sandy loam and lumpy peat, and needs considerable warmth and perfect drainage. Many years ago an enterprising gardener at Orlando established one of these trees in that city. It has been frozen back many times and is now mostly a big shrub, it has come up so many times from the roots. From that tree I obtained a few cuttings and have been able to establish several fine trees here in Stuart.

LUEHEA DIVARICATA. (*Tiliaceae*). COMMON WHIPTREE. A forest tree in its native Uruguay to 100 feet. The small branches

are very tough, flexible and whip-like. It is much planted also as an ornamental tree because of its handsome, rather large white to rose-colored flowers. In appearance the tree much resembles the LINDEN (*Tilia* sp.) but the bloom is much showier.

MURRAYA PANICULATA. (*Rutaceae*). COMMON JASMIN-ORANGE. A handsome evergreen shrub or small tree with bright green, shining leaves and bearing several times a year a profusion of small, sweetly fragrant white flowers. Ordinarily 8 feet, it may become 20 feet. Because it stands trimming well, it is often used for shrubbery around homes. It flowers when small.

TRICHILIA HIRTA and TRICHILIA PALLIDA. (*Meliaceae*). The flowers of most of the *Trichilias* are not showy, but a few of them are attractive and many are quite fragrant. Here are two Central American varieties that bear small white flowers in large panicles and should succeed as street trees with us because they thrive in either wet or dry soil. The thin pinnate leaves, about 2 feet long, are made up of 9 to 21 sharp-pointed, dark green leaflets. *T. pallida* has a tendency to be shrubby. *T. hirta* is called "broomstick tree" in Puerto Rico where its young stems are cut for that purpose. A few of the 130 varieties of *Trichilia* come from Africa where *T. splendida* has "flowers fairly large, white, very fragrant," and *T. volkensi* "is conspicuous . . . appears to flower the whole year around." *T. emetica* is called "a very handsome tree . . . The creamy white flowers are produced in crowded clusters."

SPONDIAS LUTEA (*Anacardiaceae*). YELLOW MOMBIN. A small West Indian fruit tree of which Marie C. Neal's "In Honolulu Gardens" says: "When the yellow, oval fruits, each an inch or two long, are hanging in clusters from the branches of the broad-crowned, rough-barked 'hog plum,' the tree is especially attractive. But the fruit does not have an attractive odor. Though the flavor of some varieties is aromatic and pleasant, that of others resembles, as Macmillan says, an 'exceedingly bad mango.' Some are eaten raw; some are preserved. . . . From amongst compound leaves, white, fragrant flowers grow in long clusters."

PITHECELLOBIUM PRUINOSUM. (*Mimoscaee*). SNOW-WOOD APES-EARRING. A shrub or small tree from eastern Australia bearing numerous globe-shaped clusters 1½ inches in diameter of white flowers with numerous projecting stamens. F. Manson Bailey in "The Queensland Flora" calls it "a beautiful tree." The name "pruinsum" means frosted or powdered, given to this plant because of the rusty sheen of the young branches, the foliage and the flowers. The seed pods are several inches long, much twisted.

PITHECELLOBIUM BREVIFOLIUM. HUAJILLO-EARRING. This ornamental evergreen bushy tree that ranges from 18 to 25

feet high, is called "tanasa" by the people of northern Mexico where it is native. It grows too in Texas and has been distributed by the U. S. Bureau of Plant Introduction as P. I. 75261. It is found naturally in semi-arid situations. It has short spines, bipinnate leaves and pale cream-colored flowers in head-like spikes. At Coconut Grove the tree flowers freely at intervals from May to September and is "beautiful when in full bloom." Close relative of the common *P. dulce* that is planted along the front walk at the Stuart High school, this *Pithecellobium* is evergreen, not so dirty, probably hardier than its brothers, much more attractive when in bloom.

PIPTADENIA MACROCARPA. (*Mimosaceae*). An unarmed tree from Brazil, related to *Acacia*, with small white flowers in dense round heads, often crowded at the ends of the branches.

BAUHINIA SP. (*Caesalpinieae*). The so-called "orchid trees" are very popular in Florida, notably the native *Bauhinia variegata* with its lovely fragrant purple flowers in March, but there are many other kinds that are not so well known. Here are a few of them:

BAUHINIA GRANDIFLORA. A South American tree to 20 feet which bears very large, pure white flowers that open at night. This and other white flowered varieties listed here should not be confused with the common "white Bauhinia" which is probably a variation of *B. purpurea*.

BAUHINIA PICTA. Another white-flowered variety. This one from Colombia, has not bloomed for me yet and my data on it is meagre. Bailey's encyclopedia gives it as an unarmed tree, flowers solitary.

BAUHINIA SP. Another white-flowered variety from Singapore, with the largest, fattest pod I have ever seen on a Bauhinia. The seeds came via Tahiti where the tree is erroneously known as *B. monandra*.

BAUHINIA PULCHELLA. Another member of the family from Brazil. I have no record of the flowers. The word "pulchella" means beautiful.

BAUHINIA RACEMOSA. This is a small, crooked bushy tree from India with very small leaves. The one-half inch whitish yellow flowers are in six-inch clusters at the ends of the branches.

CAESALPINIA CORIARIA and *C. VESICARIA*. (*Caesalpinieae*). The very popular "dwarf poinciana" is known and loved everywhere in Florida for its red or red-and-yellow or clear yellow flowers, but here are two tree-like relatives from Central America that are not so well known. The former grows to 30 feet, has no thorns, and bears white flowers. *C. vesicaria* is a small slender tree of 15 or 20 feet from

Cuba, usually armed with short spines, and is another hardy, semi-evergreen, small tree suitable for dry soil and exposed locations.

HYMENAEA COURBARIL. (*Caesalpinieae*). **COURBARIL.** This large tree from the Amazon region, has split leaves like *Bauhinia* (*Hardwickia binata* has them too), reaches often to 100 feet or more and is handsome, quick-growing and shady. It "would make an excellent roadside tree, were it not for its hard, heavy pods." (Corner, p. 394). The large creamy whitish or purplish flowers are in small clusters at the ends of the leafy twigs. The individual blossoms are 1½ inches wide, smelling of sour milk like **DURIAN** flowers. The brown pods, measuring up to 2x5 inches, have a bad odor. The tree was introduced a quarter century ago by USDA as P. I. 38565 from Guatemala, but is rarely seen in Florida.

DIALIUM GUINEENSE. (*Caesalpinieae*). **VELVET-TAMARIND.** This tree of the mixed deciduous and savannah forests of west tropical Africa, reaches 50 to 60 feet and bears copious flat sprays of small white or pinkish flowers. It has a spreading top and makes a hardy tree for general planting, according to Sturrock.

SYZIGIUM JAMBOS. (*Myrtaceae*). Here is that fine Florida native, the **ROSEAPPLE**. Its white fuzz-buzz or pompon flowers, its fragrant fruits, its well-shaped form, and its dark evergreen foliage make it a favorite large shrub or small tree in many gardens, where it is used chiefly for backgrounds. The most beautifully flowered member of this group is *S. malaccense*, known in Hawaii as **OHIA**, which is gorgeous when covered with its red flowers. I have one fine young **OHIA** tree in my yard but have been unsuccessful in trying to germinate seed. I have had poor luck also with seed of *S. aromaticum*, from which cloves and mace come, and *S. cumini*, the **JAMBOLAN** which is prized for its plum-like fruit.

MELALEUCA GENISTIFOLIA. (*Myrtaceae*). A 40-foot tree with dark green, stiff, flat leaves one-half inch long and white flowers of the characteristic bottlebrush type but the flower spikes are often interrupted and the petals fall off quickly. The tree gets its name from the broom-like leaves (*Genista* sp.)

ANGOPHORA LANCEOLATA (*Myrtaceae*), **RUSTY GUM-MYRTLE.** The "apple myrtles" as they are known in their native Australia, are profuse flowering trees and shrubs. *A. lanceolata*, distinguished as the smooth-barked apple," thrives on poor sandstone soil. It is a medium-sized tree sometimes 60-80 feet high, with a spreading crown and twisted, rather gnarled limbs which give the tree a very picturesque appearance. The smooth bark comes off in large flakes in Spring, leaving a fresh pink undersurface. At that time this tree looks startlingly like *Eucalyptus maculata* but *A. lanceolata* is distinguished by opposite leaves and bell-shaped, ribbed and toothed

fruits. The tree is reported to be "very patchy in its flowering, making a really good show only about once in seven years." Goodacre says, "Its prominent blossom from a distance resembles *Eucalyptus gummi-fera*." *A. lanceolata* is rarely planted in southern United States, according to Hortus, and probably would pass unrecognized because of its close resemblance to members of the *Eucalyptus* family.

ANGOPHORA CORDIFOLIA. This is a dwarf, shrubby tree which has "often more flowers than leaves." It does best in sandstone areas and ranges from 8-15 feet in height. The seed came to me from a nursery in New South Wales which recommends it for its profusion of white flowers which here in Florida may make a better showing year after year than can be expected of *A. lanceolata*.

LECYTHIS ELLIPTICA. (*Lecythidaceae*). This is one of the MONKEYPOTTREES, closely allied to the Sapucaianut and the Brazil-nut (*Bertholletia excelsa*). Seeds of all members of the family are rather slow to germinate and the trees are consequently rare in the United States. The flowers of *L. elliptica* are white and shell like. They are borne in profusion and though scarcely noticeable while on the tree because hidden among the leaves, they carpet the ground for a week or two after their fall. These nut trees are closely allied to the CANNONBALLTREE (*Couroupita guianensis*), one of the most curious of the many remarkable forest trees of the South American tropics. There is a beautiful tree in Brazil, *Lecythis pisonis*, most suitable for parks and gardens. In the flowering season it is covered with pink-purplish young leaves, together with violaceous-white flowers. The tree is illustrated in color in "Album Floristico," which says the tree is "very decorative" and "for decorative purposes, the leaves are more remarkable than the flowers themselves." So far as I know this tree is not in cultivation in the United States.

GARDENIA THUNBERGIA. (*Rubiaceae*.) When I received this seed from Durban, South Africa, last December, there were two separate packages, perhaps two varieties. Hugh Evans of Los Angeles describes it: "Quite different from the gardenias ordinarily cultivated in our gardens. Evergreen shrub with handsome cut foliage; bearing in the summer, large fragrant, single white flowers about 3 inches across. While this plant is rather slow growing, there are one or two shrubs in Southern California 16-18 feet high and as much through. When these are in bloom they are worth going a long way to see. Likes reasonable amount of water, full sun, good soil on the acid side, but will not stand as much cold as the ordinary Gardenia. (16 degrees)." Hortus gives the maximum height as 10 feet, the long-tubed flowers 3 to 4 inches across. Bailey's encyclopedia says "dwarf growing, and perhaps not now in cultivation in this country." However, Britton & Wilson describe this as "Starry Gardenia," a shrub or small tree 14 feet high with large white salverform flowers.

POSOQUERIA LATIFOLIA. (*Rubiaceae*). PANAMA POSOQUERIA.

This is a quick-growing, handsome evergreen tree from tropical America, bearing loose terminal trusses of pure-white tubular flowers that are often 6 inches long, but so thin as to give the tree the popular name of "Needle Flower." These flowers which occur in Florida from February to April, are so fragrant that their perfume fills the entire garden. The tree requires rich soil and is very tender to frost. Dr. Fairchild calls attention to a remarkable feature of the tree: "At the end of the tube is a small saucer-shaped corolla and long protruding stamens. These stamens are so set that when you touch them, they throw the pollen several inches; a surprising performance." Its behavior is very similar in this respect to the blossoms of *Kalmia latifolia*, the beloved MOUNTAINLAUREL of North Carolina which Charlotte Hilton Green in "Trees of the South" calls a "small flower-David, hurling its slingshot of pollen on marauders." She explains: "The perfect, star-like flower has ten stamens, and the anther of each is carefully hidden in one of ten little pocket cavities. When a bee creeps down into the flower for a sip of nectar its weight releases a tiny spring and up shoots the anther, dusting with golden pollen the body of the hairy visitor." Although often just a shrub, *P. latifolia* in its native habitat grows to 18 or 20 feet, and has thick, dark green, oval or oblong leaves. The yellow fruit looks like a small orange. "When in flower, the tree is a showy and handsome one," writes Paul C. Standley in "Flora of the Panama Canal Zone," p. 357. Besides importing my first tree of *Posoqueria latifolia* from the experiment station at Summit, C. Z., I have raised many plants from seed. There is a good deal of confusion over the names *P. latifolia*, *P. longifolia*, and *P. longiflora*. Macbride's "Flora of Peru" separates the first and last, other authorities regard them as identical. In juvenile appearance they cannot be told from the next entry.

POSOQUERIA MULTIFLORA. Seeds of this came from the Harvard Botanical Garden in Cuba with the notation: "This species is a large shrub or small tree, native of Brazil. The flowers are long-tubed and borne in clusters. It is called the Needle Flower." But this is a distinct species rather than a confusion of names, because I had seed also of *P. latifolia* from the same source.

GUETTARDA URUGUENSIS. (*Rubiaceae*). VELVETSEED. A small deciduous tree to 20 feet with twisted branches, from Uruguay. It bears clusters of tubular white flowers in the leaf axils, and is rather attractive as a dooryard specimen.

VALLESIA FLEXUOSA. (*Apocynaceae*). A small evergreen tree of the dogbane family, reaching 25 to 35 feet, of very limited range, found only in the hills about Zarcero, Costa Rica. The leaves are shining. The star-shaped white flowers are in clusters, somewhat resembling the Confederate Jasmine (*Rynchospermum*). The large,

semi-pellucid, white fruits come in pairs. The tree requires half shade and good drainage.

ERVATAMIA CORONARIA. (*Apocynaceae*). CRAPEJASMINE. (Syn. *Tabernaemontana coronaria*). A much branched evergreen shrub, rarely trimmed as a small tree, bearing a profusion of whorled white flowers through most of the year. Easy to grow, knows no pests, should be in every Florida garden.

EHRETIA AUSTIN-SMITHII. (*Boraginaceae*). My Costa Rican correspondent writes : "Tree to 40 feet with a broad, dense crown. Flowers white to cream colored, $\frac{1}{2}$ inch across. Leaves large, corrugated, scabrous, used for scrubbing, etc. Fruit size and form of a large, sweet cherry, rich cream yellow, turning to dark brown over-ripe, edible, has apple flavor. The fruit in Costa Rica is preserved in honey, sweet wines or liquor. About 5 to 6 years from seed to fruiting. Sun or half shade. Usually found in damp soil, somewhat heavy, but it is adaptable. The tree is endemic in the upper tropical zone of Costa Rica."

The bell-shaped flowers were in clusters at the tips of the branches. The *Ehretias* are closely related to our native FLORIDA GEIGER TREE (*Cordia sebestena*). See next entry.

CORDIA LEUCOSEBESTENA. (*Boraginaceae*). Here in Florida we think highly of our small native GEIGER TREE (*Cordia sebestena*) with its very brilliant orange, geranium-like flowers in clusters, but it is difficult to propagate and is not planted as much as it should be. There are splendid specimens on either side of the Citizens Bank building in Stuart. *Cordia leucosebestena* is a white-flowered variety of the same tree and is entirely new in this country. The seed came from the Harvard Botanical Garden at Cienfuegos, Cuba.

CORDIA OBLIQUA. A hardy, deciduous tree from India with a stout trunk and spready branches, according to Sturrock. The stiff smooth leaves are 3-5 inches long, dark green. The small white flowers are carried in open clusters. Brandis' "Forest Flora of Northwest and Central India" says *C. obliqua* is synonymous with *C. myxa*, another white flowered member of the family in India, but I think this is an error. The leaves of *C. myxa* are rough and harsh on the under surface.

CORDIA HOLSTI. An African member of the family. Battiscombe's "Trees and Shrubs of Kenya Colony," describes it thus: "A tall timber-tree, up to 70 ft. when growing in forest, but rarely exceeding 50 ft. when grown in the open. It occurs commonly in the Meru Forest (east Mt. Kenya) and the Kakamega Forest (in the Nyanza Basin), at an altitude of 4,000 - 6,000 ft. It is also found in the warmer parts of the Kikuyu country where there is a good rainfall. The large roundish leaves are clothed with brown tomentum on the

under-sides. The handsome white flowers are produced in cymes at the ends of the branches. The fruits are yellowish-brown when ripe, and about 1-4 in. in diameter. The timber is light in weight, reddish-brown in colour, even grained, very easy to work, dries without warping, and does not move once it is dry. It is thus a valuable timber, but is not commonly met with in Kenya on account of its limited distribution. It makes handsome panelling and furniture, for which it is especially suited owing to its stability under changing conditions of humidity. It has been used as boat-decking. Weight of air-dry timber 26-29 lb. per cu. ft."

IPOMOEA MURUCOIDES. (*Convolvulaceae*). My seed came from the Department of Agriculture in Mexico City. I shared it with Fairchild Tropical Garden, which distributed small trees in 1943 from it, and I gave seed to the U. S. Bureau of Plant Introduction which assigned to it P.I. 144004. Standley's "Trees and Shrubs of Mexico" says it is "a large or small tree," its branches covered with a dense white fuzz which perhaps gives rise to one of the vernacular names for it in Mexico: "*cuau-zahuatl*" (mangy tree). The white flowers are typical of the morning glory family. I find that the plant in its juvenile stage has a hard time making up its mind whether to be a vine or a tree.

SOLANUM UMBELLATUM. (*Solanaceae*). A small tree to 25 feet, if only one trunk is permitted, according to my Costa Rican correspondent who sent this seed, but Standley reports it as a large weedy shrub. My correspondent writes: "Species without spines. Fast growing. Sun or half shade. Flowers white in clustered terminal heads. In flower most of the year. The Costa Rican form is more vigorous than the Mexican." Bailey's encyclopedia says this "very likely" is the same as *S. umbelliferum* whose flowers are "pale violet or sometimes white, showy and fragrant." But obviously there is confusion over the plant, for Bailey says "berry large, purple," while Standley says "berries yellow." Meanwhile my correspondent who sent the seed writes: "Berries size of cherries, orange when ripe." This is one of the few members of the potato family which grow to tree size.

ACNISTUS ARBORESCENS. (*Solanaceae*). A fast-growing tree to 25 or 30 feet. The very numerous small, white, bell-shaped flowers form large clusters two or three times a year. When in bloom the tree resembles heath (*Erica* sp.). The leaves are rather long and thin. The fruits are deep orange berries, borne in great quantities and favored by birds. The tree is native to the upper tropics of Costa Rica and should be planted in open sites in rather heavy soil.

BRUNFELSIA AMERICANA. (*Solanaceae*). FRANCISCAN RAIN-TREE. This shrub or small tree, 10 to 15 feet, was formerly known as

Lady-of-the-Night, because the flowers are very fragrant after dark. It bears white solitary flowers that have a long (4-inch) tube and the corolla is about 2 inches across. The fruit is a yellow berry the size of a big marble. It is native of the West Indies.

DOLICHANDRONE STIPULATA. (*Bignoniaceae*) This is a semi-evergreen tree from Africa, related to our lovely Jacaranda and bearing large clusters of white flowers at the tips of the branches. It grows very rapidly, has a slender trunk, and its long, heavy pinnate leaves are often 18 inches long. It requires a rich soil and a protected location. (See next entry.)

DOLICHANDRONE SPATHACEA. "MANGROVE TRUMPET TREE." Corner says this is an evergreen tree to 60 feet, bearing white, very fragrant flowers that have a very long, pipe-like corolla tube. The flowers are arranged in short, squat, terminal clusters with one flower open at a time. The flowers are from 5 to 7 inches long, the mouth of the trumpet from 3 to 5 inches wide, the bloom pointing obliquely upward. The flowers are nocturnal, opening at dusk, falling off by sunrise, so if you want to enjoy this tree in bloom, you will have to stay up nights. Marie C. Neal of the Bishop Museum in Honolulu, who helped me obtain seed of this tree, says it grows along streams and in swampy lowlands through Malaya and in the Philippines.

TECTONA GRANDIS. (*Verbenaceae*). **COMMON TEAK.** Far-famed as the source of the world's most durable timber, this monarch of the Malabar forests that grows from 80 to 150 feet, is also one of the most beautiful of ornamental flowering trees to be found in the world tropics. It grows straight and lofty and according to Cleghorn, its cross-arm panicles of "showy white flowers . . . form a striking feature in the landscape." The individual flowers are wee and fragrant, but the clusters are in such huge sprays (up to 3 feet long, 18 inches in diameter) that overtop the foliage and push through to reach the sunshine, "that they foam over the tree exactly as if it were 'clad with a waving veil'." (Colthurst p. 114). The tree is valued as an ornamental also because of its huge leaves which frequently measure 15x24 inches. Corner says the lack of a dry season in Malaya upsets the growth habit of the teak so that it does not do well there except in the monsoon country. In countries where there is a pronounced dry season, the tree is deciduous and it flowers and fruits after the new leaves have come on with the ensuing wet season. It should be valuable as an avenue tree in Florida when it gets established here, but it must have perfect drainage and plenty of room for development.

CLERODENDRON TUBERCULATUM. (*Verbenaceae*). Most of the Clerodendrons we know in Florida are shrubs, and many folks love

their flowers despite the musty smell and the adventurous roots which run everywhere. But occasionally we find a *Clerodendron* tree, many with beautiful flowers. Dr. David Fairchild tells in "Garden Islands of the Great East" of the tree-*Clerodendron* he brought back from Masamba with 4-inch "beautiful white flowers." There is a lovely unidentified *Clerodendron* tree on the Blossom place in Palm Beach, with 18-inch strings of white flowers from its pendent branches, and I have grown some of these from cuttings. *Clerodendron tuberculatum* is a Cuban tree, rather small, with rough, harsh leaves, but at the tips of its branches it bears spikes of scented, white, tubular flowers which are followed by attractive, round, bluish fruits. These trees were raised from seed and are recommended in Florida for dry soils or exposed locations where a hardy small evergreen tree is needed.

Trees with Flowers of Mixed Colors

THESPIESIA POPULNEA. (*Malvaceae*). PORTIATREE. This native of Old World tropics feels so at home in Florida, particularly along the seacoast that it is regarded by many as native. It grows to 60 feet and is well suited for avenue planting because of its compact, rather stately habit, its showy 3-inch yellow flowers that turn purple as they fade, and its evergreen poplar-like leaves. It stands salt spray well and therefore is suitable for shore plantings. It is readily propagated by cuttings or by seed, and it grows rapidly. The new growth is a bright glossy green. In Honolulu it is objected to for avenue use because the old leaves are apt to litter the ground and the seed pods are unattractive to some but Cleghorn says it is the principal tree of the avenues of Madras, India, and there are mature parkway plantings of it in Miami. It flowers intermittently all through the year, thrives on sandy soil and forms a dense head of foliage which in India gives it the name of "Umbrella Tree."

PARITIUM ELATUM (*Malvaceae*). JAMAICA LINDEN HIBISCUS. This evergreen Florida relative of the common hibiscus, has very beautiful large leaves and striking stiff flowers that open yellow, soon change to orange, fade a deep crimson. It grows rapidly to 25 feet, blooms more or less throughout the year. It is one of our finest native flowering trees, holds its foliage to the ground, makes a good yard specimen, apparently is not attacked by pests.

BRACHYCHITON POPULNEUS. (Syn. *Sterculia diversifolia*). KURRAJONG BOTTLETREE. This tree becomes at its best a massive-trunked heavy-limbed, spreading monarch of oak-like habit with umbrageous, dark glossy green foliage, 60 to 70 feet high, but it is usually seen about half that size. It is excellent for narrow parkways and dry soils because of its narrow pyramidal shape and deep-rooted habit. The showy, yellowish-white flowers are reddish inside. Mac-

millan calls it remarkable for the shape and size of its trunk, contracted at top and bottom, giving it the appearance of a bottle.

BYRSONIMA CRASSIFOLIA. (*Malpighiaceae*). A large shrub or small tree to 30 feet high, native of Central America. The flowers are in clusters at the ends of branches. The flower petals are large, bright yellow, turning reddish with age; the fruit a yellow globe the size of a cherry. Standley's "Flora of British Honduras" says: "The tree is a highly ornamental one when in blossom, bearing its golden flowers in the greatest profusion. The fruit has a flavor somewhat suggestive of green apples, and it is much eaten in Central America generally, at least by children." My seeds came through USDA from a plant established in 1921 (P. I. 51405) from seed collected by Wilson Popenoe in Guatemala.

BAUHINIA MONANDRA. This small tree has very graceful, dainty flowers, the four lower petals pink, the broad standard (upper petal) a beautiful golden yellow with pink edge. There are bright red dots on all the petals. After 24 hours the petals all fade to a clear, lovely pink. Deciduous, but blooms two or three times a year.

SARACA INDICA. (*Caesalpinieae*). **COMMON SARACA.** The *Saracas* are called by Corner "among the most beautiful of our native (Malayan) flowering trees," and he lists several varieties, adding: "If *S. thaipingensis* is the showiest species and *S. declinata* has the most richly colored flowers, *S. palembanica* is certainly the most charming." None of these three is growing in the United States, although *S. thaipingensis* is flowering in the Harvard Botanical Garden in Cuba and through the courtesy of the Superintendent, David Sturrock, I have planted seed which I hope will germinate. But other members of the *Saraca* group have exquisite flowers, and *Saraca indica* is one of the favorite trees of India because of its beautiful bloom. Colthurst: "Familiar Flowering Trees in India" says: "The first rush of bloom is in February, when the groups of small orange and scarlet flowers appear so suddenly and so closely all over the twigs and branches, that the tree almost looks as if it had broken out in some exanthematous fever. After this it blooms intermittently until the rains are well advanced. The flowers, about an inch long, have no petals, but are constructed by a tubular calyx, two rounded bracts and a four-parted petal-like border, out of which 3 to 9 deeply crimson stamens protrude. Like so many other of our Indian flowers, their tone intensifies with age; their youth is ochreous, and their maturity vivid scarlet; a change not due to decadence, but apparently brought about by exposure, to the sun's rays, since flowers always shaded remain yellow. They are deliciously fragrant at night, and the common Indian belief is that the tree only flowers where a woman's foot has trod. . . . The trees are most sacred to Buddhists and Hindus alike who plant them around their temples and employ the flowers as votive offerings

to the gods." Nehrling says his trees grew to 12 feet in 3 years "and began to flower profusely in June and July, the flowers appearing along the trunks and large branches in large sessile clusters, remaining one strongly of those of the *Ixoras*." The *Saracas* thrive near water, in Malaya right on the edge of streams, "and their dark fibrous roots, beset with nodules, trail out in bundles in the running water. . . . They will grow most strongly in shady places, beneath tall trees, in damp but well-drained ground." Macmillan lists *S. indica* along with *S. declinata* as among the world tropics' most beautiful flowering trees. My botanist correspondent at Karachi, India, wrote me: "*Saraca indica* is very common in India and can easily grow in Stuart." The seed loses viability quickly which accounts for the rarity of the tree in Florida.

SARACA CAULIFLORA. This also is a native of India. It is rather shrubby in growth with a short trunk and lots of stiff, slender, upward branches and short, spready lateral branches. According to Sturrock: "This deciduous small tree is very showy when bare of leaves, with its small stemless clusters of scarlet flowers set along the branchlets. A hardy tree for general planting." A mature specimen of *S. cauliflora* is blooming every year at the Fairchild Tropical Garden and small plants have been distributed to members in recent years. I have received others through the Bureau of Plant Introduction P. I. 78609. They put on a great show, according to Dr. David Fairchild, and should be in every south Florida garden. This tree is closely related to if not identical with another which is rarely seen in California, *Schotia latifolia*. In my yard I have also a fine small specimen of another relative, *Schotia brachypetala* but it is not yet old enough to blossom. It too has red flowers.

CASSIA SP. My No. 1018. I am not sure of this identification. The seed was sent to me from a mid-Pacific island with this notation: "A beautiful red-and-yellow flowering tree, reaches to 25 feet high." The seed pod was papery, $\frac{1}{2}$ "x5", contained 18-20 seeds.

LAFOENSIA ACUMINATA. (*Lythraceae*). Some years ago I received this seed from Bogota, Colombia, under the name *Calyptectus speciosus*. In northern South America they have two families of trees with beautiful flowers that are closely related to and very suggestive in appearance of the Queen's Crapemyrtle (*Lagerstroemia speciosa*). These two families, entirely unknown in the United States, are *Physocalymma* and *Lafoensia*. Both have panicles of showy flowers and are beautiful trees. *Physocalymma* flowers are purple-red, while the bloom of one *Lafoensia* is described as "flesh-red and yellow." What the flower color of *L. acuminata* will be, remains to be seen when these seedlings bloom. I have never seen the tree even mentioned in any reference book except Macbride's "Flora of Peru."

SOLANUM MACRANTHUM. POTATOTREE NIGHTSHADE. Native of Brazil, this grows often to 30 feet. It has spiny, hairy leaves that are up to a foot long and bears large purplish-blue and white flowers with conspicuous yellow anthers, in clusters to 5 inches long. It thrives best in sheltered and partly shaded situations where its soft wood will be protected from high winds. It is fast growing and rather tender to frost. Macmillan lists it among the outstandingly beautiful flowering trees of the world tropics. Unable to find it in cultivation anywhere in the United States, I grew these trees from seed obtained from the Royal Botanic Garden at Port-of-Spain, Trinidad before the war stopped their exportation of seeds.

PHAEOMERIA SPECIOSA. (*Alpinaceae*). PHILIPPINE WAX PLANT. This tropical tree-like relative of the SHELLFLOWER GALANGAL (*Alpinia speciosa*) which is known in Florida as "shell lily," has heavy stems 18 to 24 feet high, with leaves 2-3 feet long. Britton & Wilson's "Botany of Porto Rico" says: "The flowering scapes are about 1 meter high (40 inches), topped by a dense, capitate, pinkish-bracted cluster of carmine flowers, the smaller, inner bracts red." This is closely allied to a plant collected near the Koro River, Gimpoe, Celebes by the Archbold-Fairchild Expedition, and distributed some years ago by the USDA with this description: "A remarkably beautiful lotus-blossom ginger, with leaves to 2 feet long by 5 inches broad, light green, alternate, on a stalk reaching 12 feet in height. The inflorescences arise underground from the rhizome. The first bracts are very broad, pink, waxy tipped, with a red beak, and later there emerges a head composed of very numerous watermelon-pink bracts tipped with white, in the shape of a rounded cone. The individual flowers at the bases are especially beautiful in bud and when newly opened. The seeds are black and are inclosed in a globose fruit about 1 1/4 inches in diameter and are embedded in an acid edible pulp."

Trees With Inconspicuous or Undetermined Flowers

VITEX SP. (*Verbenaceae*). This genus includes several ever-green tropical timber trees with more or less conspicuous small blue flowers. The plants offered here were propagated from an attractive small shade tree in the Ft. Pierce City park.

PITHECOLLOBIUM SP. (*Mimosaceae*). This seed from Guatemala came to me under the name *Astronium graveolens*, but the seed experts of the United States Department of Agriculture in Washington decided it was an unidentified *Pithecollobium* and it was distributed this spring to experimenters under that name as P. I. 145940. It has small spines and very fine cut leaves. Some of the *Pithecollobiums* have very beautiful flowers and it remains to be seen what they are in this case.

VANGUERIA INFAUSTA. (*Rubiaceae*). Small tree or shrub to 10 feet with clusters of small greenish flowers. A tropical African family not much known here, although *V. edulis* is in limited cultivation.

DOVYALIS HEBECARPA. (*Flacourtiaceae*). KITEMBILLA. Better known as the Ceylongooseberry, this tree of 15-20 feet, has small inconspicuous yellow flowers and bears purple fruits with an acid flavor which according to Popenoe "is so sweet and luscious, with a flavor resembling that of the English gooseberry which the KITEMBILLA suggests so strongly in appearance and character as to give rise to the common name." Thrives on plenty of moisture; does well in Florida but California is too cold.

ELAEOPHORBIA DRUPIFERA. (*Euphorbiaceae*). A tree up to 50 feet high from French Guinea, with stiff branches, angular when young, becoming cylindric. The young growth is clothed with pairs of short, broad-based prickles. This tree, related to our POINSETTIA bears small, round berry-like yellow fruits. Hutchinson & Dalziel "Flora of West Tropical Africa" says the male flowers are "numerous," fails to mention the color. They probably are not conspicuous. The fleshy short leaves are tufted at the ends of the branches.

COMBRETUM ERYTHROPHYLLUM. (*Combretaceae*). Most members of this family are vines and some of them have very showy flowers. However, this variety is a tall tree from South Africa with inconspicuous white flowers. Its redeeming feature is that in cold weather its leaves turn a brilliant crimson. The tree was introduced years ago by USDA as P. I. 119289.

CUPANIA SP. (*Sapindaceae*). This relative of the AKEE (*Blighia sapida*) was recommended to me for its showy appearance by the Santa Barbara Botanic Garden where thousands of interesting and useful trees are under cultivation. I have not seen it in bloom yet. Many of the *Sapindaceae* have exceptionally beautiful and showy fruits.

ADENANTHERA PAVONIA. (*Mimosaceae*). SANDAL BEADTREE. A small tree from Asia and Africa with little spikes of yellow flowers, grown primarily for ornament and the beautiful red seeds which are much used for beads. It is usually called "Red Sandalwood" but is not related to the true SANDALWOOD (*Santalum sp.*) which comes from India and is virtually unknown in the United States.

ROPALOCARPUS LUCIDUS. (*Tiliaceae*). This seed came to me from the botanical garden at Tananarive, Madagascar, but I have no description of the tree or its flowers.

PITTOSPORUM SENACIA. The seed of this tree came to me from the botanical garden in Tananarive, Madagascar. I have no description for it.

EUGENIA BRASILIENSIS. (*Myrtaceae*). BRAZIL EUGENIA. Closely allied to but apparently not identical with *E. Dombeyi*, regardless of Bailey and Popenoe. (cf. Standardized Plant Names, p. 218). This is a tree to 20 feet with attractive green foliage and striking purple or crimson, cherry-size fruits, perhaps resembling nothing quite so much as an overgrown PITANGA (*Surinamcherry*), to which it is closely related. The leaves grow like scales along the branches. The small white flowers are unimportant. The tree likes a wet location and well-drained soil. Most of the other familiar members of this family have now been transferred to the genus *Syzigium*, and under that heading you will find some old friends.

SWIETENIA MAHOGANI. (*Melicaeae*). WESTINDIES MAHOGANY. A fine large tropical tree, useful for street planting. Its flowers are inconspicuous.

PODALYRIA CALYPTRATA (*Papilionaceae*). These plants were grown from seed received from the National Botanic Garden, Kirstenbosch, Cape Town, South Africa. It is described as a shrub or small tree with silky, pubescent leaves and purplish or bluish-white butterfly-like flowers. It is closely related to the *Calpurnea aurea* occasionally seen in our Florida gardens with its lovely golden flowers, and to two other trees I have grown from seed from Africa, *Virgilia oroboides* and *Virgilia divaricata*. All of these are now available.

TREE SEEDS

Some growers prefer to raise their own plants from seed. To them I can offer several hundred varieties of seeds of flowering tropical trees, some of which are listed on the envelope in which this catalog was mailed. Moreover I am constantly in receipt of new shipments from correspondents all over the world.

To those interested in this activity, I offer a tree seed service. For an advance payment of \$5, this service entitles you to a complete list of seeds now on hand, from which you may select 10 packets, plus a monthly bulletin of new seeds received, and the choice of an additional ten packets of these seeds within a period of one year.

Best germination is obtained by planting shallowly in shredded sphagnum moss under glass. Hard seeds like *Erythrina*, *Acacia*, *Cassia*, *Ormosia*, *Adenanthera*, etc., succeed best if you put some boiling water in a glass, drop in the seeds and let stand overnight.

SELECTED LIST OF SPECIMEN TREES OF SUBSTANTIAL SIZE

(Only a very few of these available for immediate planting).

SOLANUM MACRANTHUM. This is one of the few members of the potato family that makes a tree. Native of Brazil, it grows often to 30 feet, has spiny hairy leaves that are a foot long and bears large purplish-blue and white flowers with conspicuous yellow anthers. In clusters to 5 inches long. It thrives best in sheltered and partly shaded locations where its soft wood will be protected from high winds. It is fast growing and rather tender. Specimens 5 feet, \$5.

BAUHINIA MONANDRA. One of the finest of the orchid trees, a government introduction from the Philippines, but native of Burma. It blooms here in Florida in November. On opening, the upper petal of the large flowers shows a great deal of red on a bright yellow background, one of the adjacent petals shows some red and yellow on a white and pale pink background, and the other three petals are white and a very pale pink with many fine red dots splattered over them. As the flower grows older, the red, yellow and white all change to pink. This tree drops its leaves in December, puts on its new dress in May. Specimen 4 years old, about 6 feet tall. Will bloom again in November. \$6.

TABEBUIA PENTAPHYLIA. Beautiful mature 6-foot specimen tree which is fully described elsewhere in this catalog. \$6.

ADENANTHERA PAVONINA. Fine 6-foot examples of this red bead tree, described elsewhere in this catalog. Ready to plant in your yard for ornament. \$3.

ORMOSIA COCCINEA. A blue-flowered bead tree. Very tender. Unknown in the United States. Bears large sprays of butterfly-like flowers. 5-gallon can. \$4.

BAUHINIA SP. This variety of *Bauhinia purpurea* bears large flowers of a deep rose color, and the parent tree in my yard is the most beautiful member of this group I have ever seen. Plant 6 feet tall, 3 years old. Blooms in November and keeps on flowering for a month. \$5.

BAUHINIA RETICULATA. The flowers of this West African species are in many-flowered sprays, rather than singly, and although not particularly showy, they make this tree a satisfactory lawn specimen. It never gets very big and the flowers are down where you can see them. 4-feet. \$4.

BAUHINIA TOMENTOSA. This is the bushy shrub or small tree with clear golden yellow, tubular flowers, quite unlike other *Bauhinnias*. It is quite showy in bloom and flowers several times a year. 5-feet. \$4.

KOELREUTERIA SP. I am offering three different species of this Goldenrain-tree. First, the hardiest and showiest *K. paniculata*, used as an avenue tree in Memphis and elsewhere; completely deciduous in Florida. 6-feet. \$3. Second, *K. bipinnata*, which W. B. Clarke of San Jose, Calif., calls: "One of the most showy and beautiful trees that can be grown in this climate." Yellow flowers. Retains some foliage in Florida winters. 3-feet. \$2. Third, the more tropical *K. formosanus* which is tender, keeps its foliage, carries large sprays of yellow flowers at the end of the branches. Gallon cans \$1.

PTEROSPERMUM ACERIFOLIUM. This is a large Indian tree with most beautiful foot-square, maple-like leaves, green above and white beneath, and bearing very large fragrant white flowers which are somewhat hidden by the big leaves. A striking specimen, tender to cold, evergreen, rare in Florida. 3-feet. \$5.

CALPUERNIA AUREA. A small African evergreen tree bearing yellow butterfly-shaped flowers in 6-inch strings. Pretty as a specimen against massed shrubbery, but not particularly showy. 6-feet. \$3.

ALEURITES MONTANA and **A. MOLUCCANA.** These two more tropical relatives of the tung oil tree, have beautiful big leaves and put on a considerable show at blooming time, followed by oil-bearing nuts of commercial value. 4-feet. \$3 and \$2.

NOTE: By mistake I have raised some rare tropical trees that do not have showy flowers, such as *Blighia sapida*, *Khaya nyassica*, *Swietenia mahoganii*, *Annona muricata*, *Quercus suber*, *Ptelegium solandri*, *Flacourtia ramonchi*, etc. If interested, write.

PACHIRA FASTUOSA HYBRIDS

**Grown from seed in cooperation with
FAIRCHILD TROPICAL GARDEN
Coconut Grove, Florida**

**Robert H. Montgomery, Director of the Fairchild
Tropical Garden, writes:**

The floral sensation of the winter was the use we made of red and white pachira blooms. We picked them about dark, took them to dinners and parties and placed them in tumblers. In due course they opened and the result in every case was startling. I have never known any flowers to attract as much attention coupled with admiration. At a dinner dance of the Bath Club we had 30 or 40 and during the evening some hundreds of people concentrated their attention on them. And many wanted to obtain trees.

We crossed the red with the white; they grow fast and bloom early. The hybrids we have raised come red or white but Dr. Fairchild thinks there is a good chance of something different.

**Dr. David Fairchild, President Emeritus of Fairchild
Tropical Garden, writes:**

Many strangers stop each year at "The Kampong" gate to ask what the striking tree is which stands close to it and is covered with beautiful deep rose pink flowers.

The whole look of the tree is unusual, I might almost call it modernistic. It is never solidly covered with foliage, but the leaves are large and handsome. When they come out late in Spring the wine red young leaves are beautiful with the pale green of the trunk; almost as beautiful as the flowers.

The leaves begin to drop with cool weather and by Christmas the tree is bare. Soon the picturesque flower buds begin to form. They resemble giant acorns set in their cups. For some time they grow slowly, then with spring, in March, they enlarge suddenly. Almost overnight the acorn elongates into a columnar bud as long as one's finger. The flower bud usually points straight upwards and is composed of five brown, strap-shaped petals stuck together. Watch them closely and you will notice some evening that they burst open, the long petals curling back, revealing a bundle of rose pink stamens 3 inches long, each stamen tipped with its golden anther, loaded with pollen. The next morning these long, rose-colored stamens are standing free from the flower in a mass that resembles more than anything else a shaving brush.

In South Florida we now have both the rose pink variety and one with pure white stamens, but just where the white sport originated I have not discovered. It has a delicate ethereal beauty of its own.

**Available in gallon cans after Nov. 1, 1944, at \$1 each
EDWIN A. MENNINGER, "The Flowering Tree Man"**